

CLAIMS

What is claimed is:

1. An electronic system, comprising:
 - 5 a housing;
 - a backplane disposed adjacent the housing; and
 - an electronic apparatus configured to install within the housing and connect to the backplane, the electronic apparatus having:
 - a first circuit board assembly which includes a first circuit board defining a
10 first circuit board front side and a first circuit board back side, a first set of connectors mounted to the first circuit board front side of the first circuit board, and a first heat sink disposed over the first circuit board front side of the first circuit board, the first heat sink being configured to provide cooling to the first circuit board
15 assembly;
 - a second circuit board assembly which includes a second circuit board defining a second circuit board front side and a second circuit board back side, a second set of connectors mounted to the second circuit board front side of the second circuit board,
20 and a second heat sink disposed over the second circuit board front side of the second circuit board, the second heat sink being configured to provide cooling to the second circuit board assembly;
 - and
 - a coupling mechanism that couples the first circuit board
25 assembly and the second circuit board assembly together in a substantially parallel manner, the first and second sets of connectors forming a connection interface to concurrently connect the first and second circuit board assemblies to the backplane.

2. The electronic system of claim 1 wherein the first circuit board front side of the first circuit board and second circuit board front side of the second circuit board face each other to define a common space therebetween; and wherein the first and second heat sinks reside within the common space.
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 3. The electronic system of claim 2 wherein at least a portion of the first set of connectors resides within the common space, wherein at least a portion of the second set of connectors resides within the common space, and wherein the first set of connectors is substantially parallel to the second set of connectors.
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 4. The electronic system of claim 3 wherein the first set of connectors includes a first column of circuit board contacts configured to connect with a first column of backplane contacts of the backplane, and wherein the second set of connectors includes a second column of circuit board contacts configured to connect with a second column of backplane contacts of the backplane.
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 5. The electronic system of claim 4 wherein the first circuit board includes a first physical layout of electrical traces, wherein the second circuit board includes a second physical layout of electrical traces that substantially matches the first physical layout of electrical traces of the first circuit board, wherein the first set of connectors includes a first physical layout of connecting pathways, and wherein the second set of connectors includes a second physical layout of connecting pathways that is different than the first physical layout of connecting pathways.
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6. The electronic system of claim 4 wherein the first circuit board includes a first physical layout of electrical traces, wherein the second circuit board includes a second physical layout of electrical traces that is different than the first physical layout of electrical traces of the first circuit board, wherein the first set of
5 connectors includes a first physical layout of connecting pathways, and wherein the second set of connectors includes a second physical layout of connecting pathways that substantially matches the first physical layout of connecting pathways.
- 10 7. The electronic system of claim 4 wherein the first and second circuit boards have substantially matching physical layouts of electrical traces, wherein the first and second sets of connectors have substantially matching physical layouts of connecting pathways, wherein the first circuit board assembly includes first
15 switching circuitry to control routing of signals to the backplane through the first set of connectors, and wherein the second circuit board assembly includes second switching circuitry to control routing of signals to the backplane through the second set of connectors.
8. The electronic system of claim 1 wherein each of the first and second sets of
20 connectors provides a set of electrical pathways.
9. The electronic system of claim 1 wherein each of the first and second sets of connectors provides a set of fiber optic pathways.

10. An electronic apparatus, comprising:
- a first circuit board assembly which includes a first circuit board defining a first circuit board front side and a first circuit board back side, a first set of connectors mounted to the first circuit board front side of the first circuit board,
- 5 and a first heat sink disposed over the first circuit board front side of the first circuit board, the first heat sink being configured to provide cooling to the first circuit board assembly;
- a second circuit board assembly which includes a second circuit board defining a second circuit board front side and a second circuit board back side, a
- 10 second set of connectors mounted to the second circuit board front side of the second circuit board, and a second heat sink disposed over the second circuit board front side of the second circuit board, the second heat sink being configured to provide cooling to the second circuit board assembly; and
- a coupling mechanism that couples the first circuit board assembly and the
- 15 second circuit board assembly together in a substantially parallel manner, the first and second sets of connectors forming a connection interface to concurrently connect the first and second circuit board assemblies to a backplane.
11. The electronic apparatus of claim 10 wherein the first circuit board front side of
- 20 the first circuit board and second circuit board front side of the second circuit board face each other to define a common space therebetween; and wherein the first and second heat sinks reside within the common space.
12. The electronic apparatus of claim 11 wherein at least a portion of the first set of
- 25 connectors resides within the common space, wherein at least a portion of the second set of connectors resides within the common space, and wherein the first set of connectors is substantially parallel to the second set of connectors.

13. The electronic apparatus of claim 12 wherein the first set of connectors includes a first column of circuit board contacts configured to connect with a first column of backplane contacts of the backplane, and wherein the second set of connectors includes a second column of circuit board contacts configured to connect with a second column of backplane contacts of the backplane.
14. The electronic apparatus of claim 13 wherein the first circuit board includes a first physical layout of electrical traces, wherein the second circuit board includes a second physical layout of electrical traces that substantially matches the first physical layout of electrical traces of the first circuit board, wherein the first set of connectors includes a first physical layout of connecting pathways, and wherein the second set of connectors includes a second physical layout of connecting pathways that is different than the first physical layout of connecting pathways.
15. The electronic apparatus of claim 13 wherein the first circuit board includes a first physical layout of electrical traces, wherein the second circuit board includes a second physical layout of electrical traces that is different than the first physical layout of electrical traces of the first circuit board, wherein the first set of connectors includes a first physical layout of connecting pathways, and wherein the second set of connectors includes a second physical layout of connecting pathways that substantially matches the first physical layout of connecting pathways.

16. The electronic apparatus of claim 13 wherein the first and second circuit boards have substantially matching physical layouts of electrical traces, wherein the first and second sets of connectors have substantially matching physical layouts of connecting pathways, wherein the first circuit board assembly includes first
5 switching circuitry to control routing of signals to the backplane through the first set of connectors, and wherein the second circuit board assembly includes second switching circuitry to control routing of signals to the backplane through the second set of connectors.
- 10 17. The electronic apparatus of claim 10 wherein each of the first and second sets of connectors provides a set of electrical pathways.
18. The electronic apparatus of claim 10 wherein each of the first and second sets of connectors provides a set of fiber optic pathways.
- 15 19. A method for connecting an electronic apparatus having (i) a first circuit board assembly and (ii) a second circuit board assembly to a backplane, the method comprising:
- 20 simultaneously moving the first circuit board assembly and the second circuit board assembly toward the backplane, a coupling mechanism coupling the first circuit board assembly and the second circuit board assembly in a substantially parallel manner;
- 25 concurrently connecting a first set of circuit board connectors of the first circuit board assembly and a second set of circuit board connectors of the second circuit board assembly to the backplane; and
- securing the electronic apparatus in a substantially fixed position relative to the backplane.

20. The method of claim 19 wherein the first circuit board assembly and the second circuit board assembly define a common space therebetween, and wherein simultaneously moving includes:

5 directing the first circuit board assembly and the second circuit board assembly toward the backplane while a first heat sink of the first circuit board assembly and a second heat sink of the second circuit board assembly reside within the common space.